



CHEMICAL EMERGENCY PREVENTION & PLANNING *Newsletter*



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US EPA Region 10

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EPA fines Flint Hills Resources Alaska, LLC nearly \$16,000 for Clean Air Act violations

(Anchorage, Alaska. – The U.S. Environmental Protection Agency (EPA) announced recently that Flint Hills Resources Alaska, LLC (Flint Hills) has agreed to pay \$15,867 for alleged federal Clean Air Act (CAA) emergency planning violations. Flint Hills operates a refinery near the City of North Pole, Alaska.

EPA alleged ten separate violations of the CAA including: failure to establish procedures for reviewing and updating the Company's emergency response plan, and failure to establish procedures for informing the public and local emergency response agencies about accidental releases of flammable substances.

As part of the settlement with the EPA, Flint Hills has agreed to correct all alleged violations, pay the penalty and spend at least \$60,000 on a Supplemental Environmental Project (SEP) involving the purchase of two hazardous substance spill response trailers and one incident command post trailer for the Fairbanks/North Star Borough.

"Flint Hills needed a better management system to ensure that their emergency procedures were continually updated and also needed a way to inform the public about accidental releases," said Kelly Huynh, EPA's Risk Management Plan (RMP) Coordinator. "The program is designed to protect public health and the environment in the event there is an accidental release of hazardous or flammable substances."

The federal Clean Air Act, Section 112(r), requires the development of a Risk Management Program and submittal of Risk Management Plans for all public and private facilities that manufacture, process, use, store, or otherwise handle greater than a threshold amount of a regulated substance(s). Flammable gases and toxic chemicals, such as ammonia and chlorine, are covered by the program.

The Risk Management Program requires the development of an emergency response strategy, evaluation of a worst case and more probable case chemical release, operator training, review of the hazards associated with using toxic or flammable substances, operating procedures and equipment maintenance. These requirements are in place to protect the public from the accidental release of flammable gases and toxic chemicals.

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US EPA Region 10, ERU ECL-116
1200 6th Avenue
Seattle, Washington 98101
206.553.1679 • Fax: 206.553.0124
<http://www.epa.gov/r10earth/112r.htm>

Newsletter Contacts:

For **RMP**: Kelly Huynh at
huynh.kelly@epa.gov

For **EPCRA**: Suzanne Powers at
powers.suzanne@epa.gov

For **Subscription**:
Roger Consolacion at
consolacion.rogelio@epa.gov

Seven Eastern Washington Facilities Face EPA Penalties for Risk Management Program Violations

(Seattle, Wash. - Feb. 5, 2007) Six food-processing and storage facilities and one wastewater treatment facility in Eastern Washington have been issued EPA penalties for federal Clean Air Act Risk Management Program violations. The penalties, ranging from \$2,208 to \$7,488, were levied against facilities that utilize toxic chemicals.

The penalties were assessed under Section 112(r) of the federal Clean Air Act. This section requires the development of Risk Management Plans (RMPs) and programs for all public and private facilities that manufacture, process, use, store or otherwise handle flammable and toxic chemicals such as chlorine, sulfur dioxide and anhydrous ammonia. Facility's Risk Management Programs are important to local emergency planners and responders to protect the public from accidental releases of flammable gases and/or toxic chemicals.

The following facilities entered into settlement agreements with EPA between October, 2006 and January, 2007 and have corrected their violations:

- Zirkle Fruit Co. Prosser, \$3,690 penalty, located in Prosser, WA.
- Inland-Joseph Fruit Co. \$7,488 penalty, located in Wapato, WA.
- Twin City Foods, Inc., \$4,356 penalty, located in Prosser, WA.
- Valley Fruit III, LLC, \$2,208 penalty, located in Wapato, WA.
- Welch's Foods, Inc., \$6,544 penalty, located in Grandview, WA.
- Yakima Fruit and Cold Storage, \$4,455 penalty, located in Wapato, WA.
- City of Yakima, \$4,575 penalty, located in Yakima, WA.

According to EPA officials, in six out of seven cases, potential release concerns weren't addressed by the facility in an appropriate manner.

"We're trying to prevent chemical releases to protect workers and the surrounding community," said Kelly Huynh, EPA's RMP Coordinator Region 10 in Seattle. "Prevention and advance planning is the 'heart' of our risk management program. Facilities need to take risk management planning very seriously. Like fire prevention, it could be a matter of life or death."

The Risk Management Program requires an emergency response strategy, evaluation of a worst case and probable case chemical release, and a prevention program that includes operator training, a review of the hazards associated with using toxic or flammable substances, operating procedures and equipment maintenance.

All of these penalties were conducted under EPA's Expedited Settlement Agreement process. The EPA has the option to use the Expedited Settlement Agreement process for easily correctable violations.

Failure to properly report hazardous chemical release nets Paneltech International, LLC, a \$2,500 EPA Fine

(Hoquiam, Wash. - Jan. 22, 2007) Paneltech International, LLC, a wood-based resins manufacturing company, will pay a \$2,500 U.S. Environmental Protection agency fine for failure to report the release of approximately 3,350 pounds of phenol - an extremely hazardous substance - to the environment. According to EPA documents, Paneltech failed report the release to the National Response Center (as required by federal law) until more than two hours after the incident occurred at their Hoquiam, Washington facility on Dec. 1, 2005.

Further EPA investigation revealed that Paneltech also failed to file a Tier I or Tier II "Inventory of Hazardous Chemicals Report" to the State Emergency Response Commission (SERC), Local Emergency Planning Committee (LEPC) and the local fire department. The failure to file the Tier I and Tier II Inventory of Hazardous Chemicals Report with appropriate agencies is a violation of the Emergency Planning and Community Right-to-Know Act (EPCRA). In addition to the penalty, Paneltech has also agreed to perform a Supplemental Environmental Project (SEP), which will provide \$7,500 worth of emergency response equipment for the Hoquiam Fire Department. The SEP will provide self-contained breathing apparatus for response to certain fire and hazardous materials incidents.

According to Mike Bussell, Director of EPA's Office of Compliance & Enforcement in Seattle, planning and preparedness laws help save lives. "These laws help communities prepare for and safely respond to chemical accidents," Bussell said. "They also help reduce the likelihood and severity of accidental chemical release that could harm the public and the environment."

Paneltech owns and operates a facility in Hoquiam, Washington, that specializes in wood-based resins and high performance overlay surfaces for wood paneling manufacturers.

Phenol is considered an extremely hazardous substance and is listed as a hazardous substance under the Occupational Safety and Health Act (OSHA).



Survey of Region 10 Facilities that De-Registered from RMP

The EPA Region 10 Risk Management Program (RMP) investigated de-registered facilities (between 1999 to mid-2006) that reduced RMP substances below threshold quantities or switched to safer chemical alternatives due to implementation of the program. These activities significantly reduced or eliminated the possibility of a catastrophic chemical release. Facilities deregister from the RMP upon notifying EPA that they no longer use a regulated substance; have reduced chemicals below reporting thresholds; or have terminated, merged or moved operations.

The analysis identified 72 facilities that reduced or eliminated chemical hazards. Thirty six (36) deregistered facilities were not considered because:

- Their process was exempt from the RMP (for example, propane storage for on-site fuel); or
- The plant terminated operations due to financial problems. Available records revealed that some facilities discontinued operations unrelated to RMP regulatory requirements. Most plant closures were due to a combination of the following: higher fuel prices affecting energy-intensive facilities (example: aluminum smelter); changes in traditional industries (examples: fruit canning and brewery); replacement of older plants in commercialized districts with newer plants in industrial locations (example: municipal water treatment plants).

This investigation acknowledges companies that have successfully reduced or eliminated catastrophic chemical release hazards and de-registered from the RMP program.

The survey shows that many chemical facilities have made significant improvements in safety and security by switching to less hazardous chemicals and processes. Consolidating operations of facilities to fewer locations can also reduce the overall number of people in danger. Millions of Americans are safer as a result of these changes.

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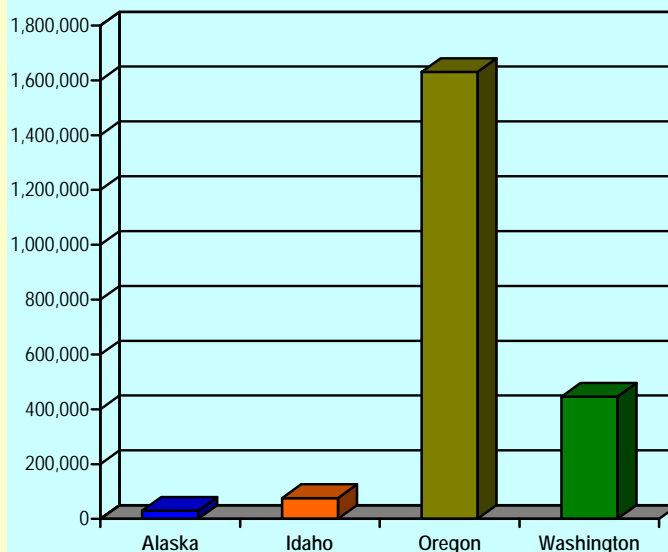
De-registered Facilities & Population Affected

	No. of RMP Deregistered Facilities	Population Removed from Chemical Hazards
Alaska	5	30,187
Idaho	13	76,047
Oregon		

RMP De-registered facilities (EPA Region 10, 1999- June 2006)

✚ The 72 de-registered facilities in EPA Region 10 (AK, ID, OR, WA) eliminated or reduced the danger of a chemical release to some 2,182,901 residents of the surrounding communities.

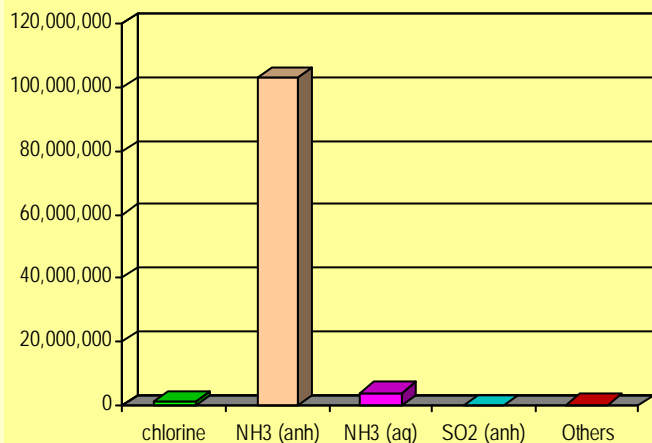
Population removed from chemical hazard zone due to RMP de-registered facilities (1999-June 2006)



✚ The greatest reduction of population to possible releases is in Oregon (1,630,598 people).

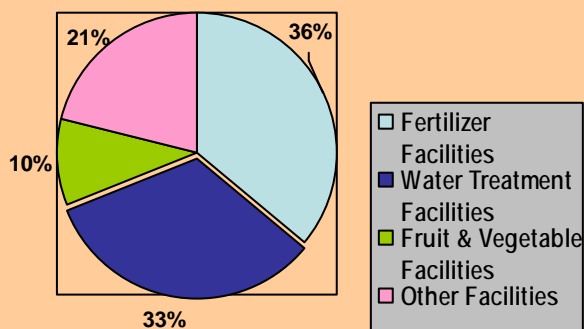
Hazardous Chemicals of De-registered Facilities

Quantities (in pounds) of Most Common Chemicals reported by De-registered Facilities (EPA Region 10, 1999-June 2006)



✚ Most of the de-registered facilities removed anhydrous (waterless) ammonia. Other common deregistered chemicals include aqueous ammonia, chlorine gas and anhydrous sulfur dioxide.

Industry Group of De-registered Facilities



✚ Fertilizer, Water Treatment and Fruit & Vegetable facilities are the most common deregistered facilities. Seventy nine percent (79%) of the deregistered facilities belong to these three groups.

Profiles of Some De-Registered Facilities in Region 10

- A large aluminum rolling mill formerly used large volumes of chlorine gas from 90-ton rail cars in fluxing operations that remove impurities from molten aluminum. Workers on the plant's safety and health committee and plant management became concerned with recurring chlorine leaks and injuries as well as corrosion of tools and infrastructure. After further investigation, the facility changed the fluxing process to a solid magnesium chloride salt injected with nitrogen gas. This change greatly improves worker safety, reduces maintenance costs and eliminates the danger of a major chlorine gas release to 137,000 nearby residents.
- A leading exporter of fresh and processed cherries consolidated its cherry brining operations from a populated area in Salem, Oregon, to less populated eastern Oregon. Cherry brining uses anhydrous sulfur dioxide as a feedstock in preserving and firming cherries for year-round food processing. Transporting anhydrous sulfur dioxide is hazardous. Consolidating operations improved business efficiency and eliminated a large vulnerability zone that encompassed 1.2 million people in Salem and surrounding areas.
- A number of municipal wastewater treatment facilities switched from Chlorine Gas to Ultraviolet Light for water treatment. The use of ultraviolet light eliminates the hazards of transporting and working with chlorine gas.
- Some water utilities switched from chlorine gas to liquid bleach (sodium hypochlorite). Liquid chlorine bleach is safer to work with than chlorine gas. Chemical costs tend to be higher for liquid bleach than chlorine gas, but overall costs are competitive when the full dangers and costs of safety and security are considered.
- Two facilities now treat water by generating bleach disinfectant on-site. This practice eliminated bulk storage and transportation of chlorine gas. The process uses salt, water and electricity to produce a dilute bleach solution.

What Chemicals could be a Problem when Mixed with Sodium Hypochlorite?

Since more and more plants are now using or considering using sodium hypochlorite solutions (bleach) as a disinfectant or treatment chemical, it is important to know what potential hazards with this chemical must be addressed. Because it comes as a liquid (aqueous solution), does not mean that the release of chlorine gas cannot occur. Steps must be taken to prevent this from happening at your plant.

Accidents have occurred when an acid or an acidic chemical was transferred into the sodium hypochlorite solution storage tank, or, conversely, sodium hypochlorite solution was transferred into a tank containing acidic chemicals.

The following are some of the more common acidic chemicals found at water and wastewater plants that can react with sodium hypochlorite:

- ferric chloride
- ferric sulfate
- ferrous sulfate
- ferrous chloride (pickle liquor)
- alum (aluminum sulfate)
- hydrochloric acid
- sulfuric acid
- phosphoric acid
- fluosilicic acid (hydrofluosilicic acid)

Depending on the concentration of the sodium hypochlorite solution, over one pound of chlorine gas could be released for each gallon of bleach that reacts. A tank truck delivering 5000 gallons of bleach into the wrong tank can cause a major release. Even a storage tank containing a few hundred gallons of bleach, if mixed with a reactive material, may cause the formation of a large amount of chlorine gas which could have an off-site impact.

In addition to acids and acidic compounds, there are a number of other materials that may be on-site that also can react with bleach in a violent or dangerous way. These are the compounds containing:

- ammonia
- ammonium hydroxide
- chlorinated amines
- organic chemicals/materials
- fuels

What can you do about it?

Multiple steps need to be taken to prevent these accidents. Some suggestions you should consider are:

- Extensive operator training
- Securing/locking devices on tank loading lines
- Checklists that your operator must complete before each chemical delivery is accepted.
- Change the fittings on the loading lines to different sizes or types.
- Color coding and labeling of process lines and fittings.

Specific operators should be assigned the duty of accepting deliveries. They should be trained in the unloading process and also know the hazards of each chemical you receive. A trained operator from your site should be responsible for making sure the correct product is unloaded into the proper tank.

Blind flanges or the end caps of quick-connect fittings should be equipped with a padlock or a chain and a padlock to prevent a trucker from unloading without your supervision. Only your operator should have a key to these locks. A checklist, used during each delivery, provides an added measure of safety and can provide valuable historical information about shipments. A checklist should require your operator to confirm the name of the chemical by reviewing the shipping papers and the placarding of the truck or tank car. A checklist also can be used to confirm:

- The sample of the chemical was collected.
- Your plant's policy on the use of safety equipment was followed.
- The quantity of chemical you received agrees with the amount written on the shipping papers.

The operator should sign-off on each form after the delivery is completed. A supervisor should frequently review these forms for accuracy and completeness.

Different sizes or types of fittings on loading lines should never be the sole method of preventing accidental mixing, but they can be one part of the solution.

Color coding and clear, bold labeling should always be part of the solution.

(Source: Chlorine Institute)

IMAGES

Chemical Incidents and Lessons Learned



Overheating Of Process Vessel Caused Overpressurization and Explosion



Overpressurization Of Petroleum Tanks Led To Catastrophic Vessel Failure And Fire.



Building Shows Damage Following Fatal Acetylene Gas Explosion Due To A Leaky Valve



Poor Maintenance Procedure Caused Ethylene Oxide Explosion



Absence Of Safety Valves Caused Powerful Tank Explosion And Fire



Fire Lights Sky After Runaway Chemical Reaction Caused Explosion



Damage After An Explosion Of Benzoyl Peroxide Which Became Unstable At High Concentrations



Damaged Piping After A Ventilation System Explosion Due To Accumulation Of Hazardous Material

Safety Alert

Is This Valve Open? ... or Closed?

Many people would expect this valve to be closed - the position of the valve handle (in this case, a "valve wrench") is perpendicular to the pipe. But close inspection of the valve position indicator shows it is parallel to the pipe, clearly indicating the valve is open! WHY? The valve wrench collar is square and can be positioned in two ways – one with the valve wrench parallel to the valve position indicator and the other with the valve wrench perpendicular to the position indicator.

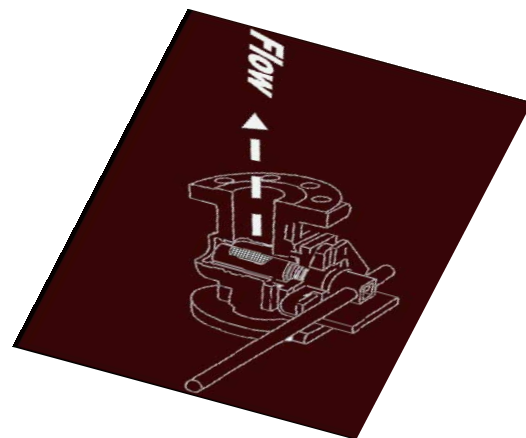
Valve Wrench

This confusing setup was one cause of an incident which injured 6 people, resulted in 13 million US dollars in damage, shut down a refinery for several months and required off site evacuations. Operations personnel used this valve to isolate a pump for maintenance and mistakenly believed the valve was closed. It was not! The result: release of a large quantity of flammable liquid at 150 psig and 350 degrees F, followed by an explosion and fire.



Did you know?

- Look for equipment that does not work the way you would expect. Have it modified! Pay special attention to confusing control displays, valve position indicators, equipment running status indicators and instrument displays.
- Local culture and/or practices can change the way things are "expected" to appear. For example, some translations of this Safety Alert in other languages will read from right to left. If you use equipment manufactured in another country, it may not operate the way you expect it to – it is also deserving of special attention.



What can you do?

- People have expectations for how equipment will work based on what they see. It is critical that equipment align with these expectations to avoid setting traps for operators and mechanics.
- We may remember that a device works in an unusual manner when we have time to think about it. But, in an emergency or when we are distracted by other events, we forget. Then, we revert to our basic assumption that things work the way we expect them to. In this incident, a valve handle was perpendicular to a pipe, and people assumed it was closed.

(Source: Process Safety Beacon)

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This newsletter provides information on the EPA Risk Management Program, EPCRA and other issues relating to the Accidental Release Prevention Requirements of the Clean Air Act. The information should be used as a reference tool, not as a definitive source of compliance information. Compliance regulations are published in 40 CFR Part 68 for CAA section 112(r) Risk Management Program, and 40 CFR Part 355/370 for EPCRA.